Taylor (R. W.)

ON THE

MODE OF DEVELOPMENT AND COURSE

OF

MOLLUSCUM FIBROSUM

AND ON THE QUESTION OF, ITS RELATION TO

ACROCHORDON AND OTHER CUTANEOUS OUTSHOOTS.

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R. W. TAYLOR, M.D.,

Surgeon to Charity Hospital.

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ON THE MODE OF DEVELOPMENT AND COURSE OF MOLLUSCUM FIBROSUM, AND ON THE QUESTION OF ITS RELATION TO ACROCHORDON AND OTHER CUTANEOUS OUTSHOOTS.[1]

A STUDY of the history of molluscum fibrosum from the time of the publication of Ludwig and Tilesius' monograph (*Historia pathologica singularis cutis turpitudinis*, et cet. Leipzig, 1793) till to-day shows strikingly the great aid pathological anatomy has given to clinical study in the knowledge of this interesting affection. While to Bateman undoubtedly belongs much credit for quite clearly differentiating clinically molluscum contagiosum from molluscum fibrosum as distinct morbid processes, yet it must be conceded that to the investigations of Rokitansky and of Virchow we owe our present knowledge which draws such sharp pathological lines between the two affections. In his admirable chapter on molluscum fibrosum, which is by far the best one in any language, Kaposi[2] says: "No practitioner has hitherto been able to observe the development and course of molluscum continuously during any lengthened period, for the simple reason that, owing to the incurability of the disease, the patients remain but a short time under the care of the same physician. Much, however, may be deter-

[1] Read before the New York Dermatological Society, December 21, 1886.

[2] "Lehrbuch der Hautkrankheiten." Hebra and Kaposi, Band II., page 242. Stuttgart, 1876.

mined with probability as to the development and course of molluscum from a comparison of the many nodules and tumors which are present at the same time in the same individual and which differ widely amongst themselves in size, shape, color, consistence, et cet.; whilst, on the other hand, their peculiarities show many signs of similarity and of transition. The anatomical conditions met with in molluscum afford essential help in this respect." It was my good fortune, about fifteen years ago, to have the opportunity of studying the development and course of this affection in the person of a young man for a long period of years, during which I made frequent painstaking observations, which were carefully written down from time to time. Further than this, I have had the opportunity of studying the affection in patients of my own and in those of some of my friends, and have thus here had the essential help which Kaposi has so clearly and tersely stated. I therefore feel that I am in the position to give a reasonably accurate account of this portion of the clinical history of molluscum fibrosum, which is to-day wanting. While Kaposi gives many of the features observed in the development, he does not, nor does he pretend to, give a consecutive history of the process of formation. Having, in the light of my chief case, aided by analogical evidence offered by others, traced the development and course of the molluscous tumors from their first appearance to their stage of permanence, we will then study them through, what exceptionally occurs, their period of involution or retrogression, when all the features are changed and when all that remains of them are certain warty outgrowths of the cutis to which the old term, used by Hippocrates for warty growths in general, acrochordon, may be applied. Having, then, established the direct relations between the tumor as the primary morbid process and the acrochordon as being essentially secondary to it, we shall be prepared to look back and see that, though Behrend and Simon were wrong in classing as allied to molluscum fibrosum such affections as degenerations of the sebaceous glands and ducts, sebum-warts, and nævus lipomatodes, they did not stray far from the truth in claiming at least an occasional relation between molluscum fibrosum and acrochordon, and certain forms of warts and moles known as nævus mollusciformis. Important as the first division of the subject is, the second also possesses both interest and importance, since for the last thirty or forty years very little, if anything, has been written on the interdependence of these various kinds of growths, and, with the exception of Wilson, no author even has attempted a classification of, or given a good description of the acrochordon and of its allied cutaneous outgrowths. While many authors are silent, others speak of acrochordon as pedunculated tumors and confound them with sebaceous glandular tumors and with sessile warts due to epidermal hypertrophy; while others again speak of it as a

benign growth similar in character to molluscum fibrosum, but containing also adipose tissue. This brief summary, which contains the essential facts, shows us that to-day we are are really not clearer, if as clear, in our differentiation of the various interdepending forms of warty cutaneous outgrowths as was dermatology in the time of Plenck, 1783, or later in the times of Behrend, 1839, and of Simon, 1851. In fact, utter confusion reigns. The case which forms the basis of this paper presents the following history:

M. R., aged 23; Irish; a clerk; came under my observation in June, 1872. He was a healthy, rather intelligent man, who had had no other sickness during life than an attack of measles. He was very muscular, and had considerable adipose tissue. His father, mother, four brothers, and six sisters were healthy, and free from any skin disease. Over his body an eruption of tumors and certain warty, purse-like protuberances were to be seen. It was most copious upon the back, near the median line, from a point on a level with the umbilicus as far down as the gluteal region. Towards the sides and on the anterior aspect of the trunk it was less abundant. A few tumors were seated upon the scalp, the lower part of the neck, and as far down as the middle of the thighs. There was, in addition, upon the right lateral abdominal wall a fold of skin, which began at the right anterior superior spine of the ilium, and ran obliquely upwards and backwards, and merged almost imperceptibly into the integument within two inches of the spines of the eleventh and twelfth dorsal vertebræ. At its central and broadest portion, it was about three inches wide. The color was somewhat mottled, being in some spots normal, in others of a bluish tint. There seemed to be a thinning of the epidermis. If this flap of skin was pressed between the thumb and fingers, the same sensation was conveyed as is found in an old varicocele. Quite well-developed, thick strands of fibrous tissue seemed to be mixed up together, which might readily be taken for swollen veins. This tumor was, like the rest on his body, painless unless subjected to undue pressure. The affection of the skin observed in this case, fibroma molluscum, was divided into two varieties of tumors, one made up of swellings or pouchings out of the skin, varying in size from two lines in area to those of a diameter of five-eighths of an inch; some were larger and being both round and oval. The second variety was composed of very many warty growths, or nipple-like pouches of the skin, some of a slightly pinkish, others of a slightly brownish color, which seemed to be a protrusion of the epidermal or more superficial layers of the skin. The tumors of the first variety were much less numerous than the warty growths, they being in the proportion of about twenty-five or thirty to one. These two varieties of elevations of the skin were scattered over the parts already mentioned in a most irregular manner, the solid eleva-

tions being in greater number in some spots, and the warty growths in others.

When the tumors of the first variety were carefully studied, it was evident that certain striking differences in appearance observed were due to changes in their development; consequently, it is necessary to study this first form, which represents the fibroma molluscum in all of its phases, in each stage of development, and of its retrogression in the clinical features presented by the warty growths.

The first stage in the development of fibroma molluscum is seen to be a slight uplifting of the skin in the form of a somewhat round spot, having an area of a quarter of an inch and even less, being slightly convex, and at its highest part being frequently at this stage about one-half a line higher than the normal plane of the skin. These young spots or elevations are at first of a very light pink, later many are of a rosy hue, even of a reddish and slightly bluish color. This increase of color is not absolutely limited to the surface of the morbid growths. Examined thus early in their development with the tip of the finger, the molluscous tumor feels soft, and much more readily depressed than the rest of the skin, and conveys the idea that the whole derma is slightly thinned. As the tumors grow larger, and when they have attained a diameter of about half an inch, they can be studied with much more accuracy. Thus, if the tip of the index finger is placed directly upon one of these spots at this time, or at any time until it undergoes retrogression, if that occurs, it can be pressed gradually and slowly downwards into the skin, and a sensation is conveyed as if the integument is pierced by a hole. Undoubtedly there is a round or oval spot of thinned derma in which the uplifted tissues can be invaginated; this thinning of the derma proper can be readily appreciated from the time of the earliest appearance of the tumors as slight, soft swellings up to their reaching the size of a nutmeg, and perhaps later, not only by pinching it between thumb and forefinger, or by grasping a fold between the blades of a forceps horizontally held, and also by pressing very gently, but firmly, with the end of a probe or other small instrument, and then suddenly withdrawing the pressure. Thus treated, the skin over the morbid growth is easily indented, and slowly rights itself, whereas on the healthy skin the rebound is prompt and sharp. Up to the time of the maturity of the molluscous tumor, it is evident that there is structural continuity between the underlying morbid growth and the skin above. This fusion of the newly-formed elements with the skin takes place quite early in the development of the molluscous tumor. In some instances I found very small subcutaneous tumors by careful palpation and examination, which later on contracted adhesions with the skin, and later became salient.

Reviewing, now, the development of fibroma molluscum, we find that it begins subcutaneously; whether, as Rokitansky thinks, in the deep connective-tissue meshes, or, according to Fagge and Howse, in the connective-tissue wall of the hair-follicle, or further, according to Virchow, Kaposi, and many others, from the connective-tissue framework of the fatty tissue, I am unable to say. Beginning as a minute circumscribed neoplasm, it pushes upwards and contracts adhesions with the overlying skin, then, increasing in volume and area, it shows itself as distinct tumors, at first, and in some cases in all stages, covered with skin of normal hue, or at first of slightly-pinkish color, which may increase to a red, and even to a red and blue or mottled color, according to the condition of pressure upon the vessels and capillaries in the overlying skin. With this explanation, I think nothing further is required in describing the color of the tumors of fibroma molluscum.

When the tumors have reached a diameter of nearly one inch, their course can be studied quite accurately. At this time the tumor will be either round or oval, according to the direction of the bundles of the strong subcutaneous connective-tissue framework of the part invaded. On the back they are mostly round, while on the sides of the body they are oval, and their axes show a tendency to follow the oblique line of the ribs. Whether round or oval, in general it may be said that a tumor reaches its full development when it occupies an area of an inch, though they may grow much larger. Thus formed, it may remain for a long time indolent and unchanged, or it may slowly increase and become hard and firm, and whereas it was at first to the feel rather soft and slightly compressible, it becomes hard and unyielding as it slowly increases in height and area. Or from the period of full development, it may gradually retrogress, and later be replaced by the warty growths, pouches, or nipples to be considered later on. My studies of my own cases, and my reading of those of other observers, teach me that, in general, retrogression of the tumors of fibroma molluscum occurs mostly, and perhaps I may say only, in young subjects, particularly in those under twenty years, and that beyond thirty it is very exceptional to see involution. I have never seen it at this age.

When the tumor reaches a goodly size, certain changes may be observed in its shape. Thus it may become broader at its base, and result in a sessile tumor, in which event it is usually permanent; or, again, the protruded portion of the tumor may increase in volume in a greater degree than at its base. The result is that we find, later on, a pedunculated tumor which, continuing to grow, may become pendulous, and constitutes then what the older writers called molluscum pendulum. Further, a tumor may grow large of itself, and even may fuse with other tumors, then the activity of growth in the elevated portion of the neo-

plasm continues with rapidity and great increase, and a true flap of skin is formed, called sometimes dermatolysis. The case I have recorded showed well this condition, and it has been frequently observed even in greater size in other cases. The cases of dermatolysis in which there are no co-existent fibroma molluscum tumors have undoubtedly begun and developed in the manner just described. One of the most notable examples in literature is the case of Marcacci,[1] in which the tumors sprang from the occiput and base of the neck, and developed into mammoth proportions, covering large parts of the anterior and posterior surfaces of the trunk.

Let us now go back again to the study of the course of the fibroma molluscum in the young patient whose history I have given. When the tumors had reached an area of not quite half an inch, their elevation was hardly sufficient to allow of their manipulation, except that they could be invaginated by a small finger. When larger, they were readily examined, and between the thumb and forefinger uniformly a sensation was conveyed as if there was contained within a number of thread worms or of boiled vermicelli. In such tumors, the neoplasm is soft and gelatinous, and may be attended with exuberant growth, since they may either increase rapidly or begin to wither and undergo involution. This condition is in marked contrast with the feeling and consistence of the tumors of slow growth seen in older persons, in which we find a perhaps lobulated, and perhaps solid tumor, but usually hard, firm, and resistant to pressure. In the case under consideration, almost all of the tumors were of this soft consistency, while in other cases of older subjects, I have observed scarcely any tumors but those of fibroid structure. I am led to believe, therefore, that the softer and more exuberant tumors are seen in earlier life, whereas the harder and more dense ones are developed later in life. Certain it is that the older the patient grows the more slowly do the tumors grow, and that with the slowness, there is greater density of structure. As a corollary of this, it may be stated that, in proportion as the tumor is of rapid development and of succulent structure, so is its tendency to involution greater, and that in proportion as the growth is slow and condensed, so is the future of the tumor that of permanence. When removed, the soft tumors are found to be of a gelatinous structure, and to adhere to the fingers, while the older ones are firm and resistant. Under the microscope, the former are found to be composed of a succulent, œdematous, wavy connective tissue with many cells, while in the latter the fibres are firm and not œdematous, and the cells less numerous.

Let us now study the features observed in the process of retrogression

[1] "Di un Raro Esempio di Fibroma Mollusco." Giornale Italiano delle Mal. Ven. e delle Pelle. Vol. xiv., 1879, page 193.

or involution of the molluscous tumors. The soft contents of the tumors are distinctly adherent to the cutis above them in the period of full development, and the atrophy of the skin which may occur is found to be in exact proportion to the rapidity of development and to the firmness of the structure of the tumor. In the soft form, the skin may be, or at least often seems, perfectly normal in thickness, while over old and firm tumors it is generally more or less thinned and adherent to the neoplasm. In young persons, therefore, there is very little destruction of the skin up to the period of full development of the tumor; later on, it may occur in the manner yet to be described.

Being fully matured, the tumor, which undergoes retrogression, gradually grows more pedunculated. It seems that, then, the skin around it begins to grow narrow, and that the mouth of the pouch of skin, if we may thus term it, grows smaller, just as by the strings of a purse we may close it more or less. Indeed, this gradual encroachment of the surrounding skin upon the base of the pouch-like tumor plays an important, perhaps the most important, part in its retrogression. Coincidently with this circumferential closing up of the skin, the invagination of the tumors grows less and less easy of accomplishment. Evidences of involution are now seen in the tumors themselves. The adherence of the neoplasm to the derma at the period of development being well marked, it may be found to become detached gradually so that the overlying skin can be readily pinched over the tumor. To be more minute, at first the skin proper can only be pressed together by forceps held horizontally to the plane of the skin, and very soon a fold can be grasped between the thumb and forefinger. Then, as the neoplasm slowly retrogresses, it can be felt to gradually melt away or withdraw in salience and breadth, and then continue until in some tumors only a fibrous cord can be felt contained in a flabby pouch of skin. Traction on this showed that the cord was deeply attached to the connective tissue underneath. In proportion as the neoplasm melts away, so does its cutaneous envelope and the encircling ring of skin at the base of the tumor undergo change. The skin itself becomes flaccid, and then gradually wrinkled. The color pales visibly, since the tension of the capillaries of the skin is much lessened. The circumferential closing of the skin around the base of the tumor goes on gradually and slowly, while coincidently the skin becomes thinned and more wrinkled, and the tumor less salient, more circumscribed in area, and difficult to grasp. This we may term an intermediary stage in the life of the molluscum; it is no longer a tumor proper, nor has it yet become a warty growth. In the case which forms the main basis of this description, the area of the tumors was about one inch before the retrograde changes took place, yet I saw the process overtake larger and even smaller tumors. The further

features of involution are similar and continuous to those already described. The circumferential constriction at the base of the tumors steadily goes on, and there is often an appreciable thickening of the skin at this point. The hole in the derma gradually closes up, and in time no evidence of the neoplasm can be seen or felt. What has become of it we cannot say. It is probable that the young connective tissue forming the growth has undergone fatty degeneration, and has been absorbed. It is an interesting question yet to be solved, whether the ring-like constriction of the skin at the base of the tumor has any influence on its degeneration. Whether, in proportion to the growth of the ring-shaped constriction, there is a concomitant pressure on the vessels which tends slowly to strangulate the growth of the contained neoplasm, we are unable to state.

While the above-described changes have been going on in the neoplasm and in the circumambient zone of skin, the cutaneous envelope of the tumor, which has become a mere empty pouch of skin, grows slowly and gradually less in height and area. In the case under consideration, these warty growths or purse-like outgrowths of skin were of various sizes, from that of half an inch in length and from two lines downwards in area, in every degree until they were found to be the size of a canary seed, and even as small as a bird shot. The larger ones could be extended from the skin fully half an inch, as a thin, wrinkled pouch, translucent and firmly continuous with the plane of the skin. This long outgrowth, when traction ceased, gradually subsided, coiled itself up, and presented the appearance of a pedunculated mole or warty growth.

Very many remained thus large, forming tumors of the size of a pea, while the greater number underwent slow retrogression, until they finally became a little warty growth which could scarcely be pinched between the nails. Thus we see that what had been a well-marked tumor of fibroma molluscum had successively become an undoubted cutaneous pouch, which had gradually withered until it had formed either a pea-sized pedunculated tumor or even a very minute warty growth. Years ago I snipped off a growth of this kind of the length of half an inch, and submitted it to microscopic examination, and found no evidences of true skin whatever. It was composed of simply a tissue of fibrous structure covered with epithelium.

On the space of four square inches I counted eighty of the minute warty growths of various sizes. Seen in a group, they look like so many minute nipples, being in color very much like the virgin nipple or the scrotum of the young boy. In some a faint brown color could be seen, but none of them possessed the hue of normal skin. To the touch they presented a peculiar soft, velvety sensation. The most minute ones thus remain and never undergo further retrogression.

In the early part of the stage of what I may call warty formation, the distended skin may be invaginated by means of a probe, and this procedure may be practised generally in the larger and permanent growths. But as the outgrowth grows smaller, invagination by any instrument becomes more difficult, and is finally found to be impossible.

The time occupied in the development of the tumors varied. I traced the course of several tumors until they attained a diameter of half an inch, which occupied a period of four months, and again I saw several of the same size fully eight months in reaching their growth, while in other and larger ones fully a year elapsed before maturity. As the patient grows older the time of development and decline become more prolonged. The period of involution and retrogression also varied in length. I saw several tumors which grew to a diameter of half an inch which occupied eight months in the period of involution. But the patient assured me that his relatives and he himself had seen fully two large crops of tumors come and go and leave the warty outgrowths in the period of one year. He thus had had successive crops from his earliest days.

Though the vast majority of the tumors had a self-limited existence, very many come to stay, as the facts of his history show. The large dermatolytic flap was, of course, permanent. As the patient grew older, the tumors were much less numerous, grew more slowly, and were permanent.

I think I need add nothing further as to the mode of development of the fibroma molluscum tumors. The facts observed speak for themselves fully, and I think bring out the clinical history very clearly.

The teachings of this case, however, are still further of very great importance as showing the undoubted relation between the fully formed tumors and the warty growths. In my description thus far, I have contented myself with calling these little outshoots of the skin warty growths, and have not applied to them the terms acrochordon, weiche warzen, venues charnues, moles, ecphyma mollusciforme (Wilson), and cellular tissue polypi (Förster), for the reason that I did not want early in the essay to introduce a polemical element. With the facts already brought out, I think I am in the position to claim that in this case certainly there is the closest possible relation between the fibroma molluscum tumors and the warty growths, call we them either names, acrochordon, ecphyma mollusciforme, or any of the others.

My studies of this case and of very many others, presenting the lesions known by the laity as moles, mothers'-marks, berries, warts, and by the profession as acrochordon,[1] ecphyma mollusciforme, in Germany

[1] Hippocrates (B. C. 450), in his aphorisms, described acrochordon as an integumentary wart, growing like the end of a thread from the skin and being found in

as weiche warzen (Simon), and cellular tissue polypi (Förster), in France as venues charnues, and among English-speaking physicians sometimes as soft warts, have led me clearly to the conclusion that their mode of development is in all essentials similar to that just traced in the lesions of this case. Perhaps in utero or after birth, at a longer or shorter interval, a protrusion of the soft, rapidly-growing derma occurs, perhaps caused by a subcutaneous neoplasm, fibrous or adipose, or perhaps as a simple sacculation of the skin. In either case the same phenomena occur. The growth becomes pedunculated, the contents more or less absorbed, and finally the little blemish or blemishes—as there may be several—of the skin are formed, and there they remain, the date of their origin and their nature alike being a puzzle to the lay and medical mind. In some cases, we find that absorption goes on until a long thin protrusion of atrophied skin, which is simply a layer of fibrous tissue covered with epidermis, remains, and when unextended it sinks down and coils up on the surface in the form of a small pedunculated warty

children between the age of dentition and manhood. (E. Wilson, "The Dermal Pathology of Hippocrates." Journal of Cutaneous Medicine, Vol. 2, page 17, London, 1868.)

Celsus (B. C. 18), speaking of tumors resembling warts, says one kind the Greeks call acrochordon, wherein is a development of something hard and uneven under the skin, the latter retaining its natural color. (E. Wilson, "The Dermal Pathology of Celsus." Appendix to Journal of Cutaneous Medicine, Vol. 2, pages 12 and 13.)

Paulus Aegineta, seven hundred years later than Celsus, says, "The akrochordon is a small rising of the surface, free of pain, callous, for the most part round and heavy, a narrow base so as to appear to hang. It is so called from its resemblance to the end of a cord." (E. Wilson, "On the Dermal Pathology of Paulus Aegineta." Journal of Cutaneous Medicine, Vol. 3, page 33. London, 1867.)

The ninth class of Plenck's classification includes *excrescentiæ cutaneæ*, and under this head includes warts, of which he makes nine varieties, the second of which are pendulous warts (hängende warze, stengelwarze), which include acrochordon, which he says hang from the skin by means of a little stem. ("Lehre von den Hautkrankheiten," Wien, 1777.)

Wilson, in his chapter on developmental and nutritive affections ("Diseases of the Skin," 7th edition, Philadelphia, 1868, pages 328 and 329), following Mason Good, considers these pendulous growths of the skin under the term ecphyma and allied to warts. He makes two varieties, ecphyma molluscifórme and ecphyma acrochordon.

The first variety is a prominence of the skin produced by simple growths of the integument, more or less pedunculated, sometimes sessile, of sizes between a pea and a walnut. This also is called nævus molluscifórme. The second variety, or acrochordon, or, as he terms it, pedunculate wart, is a diminutive form of the preceding.

The venerable age and expressiveness of the term acrochordon should, I think, commend it to us for retention in our nosology. To Sir E. Wilson certainly belongs the credit of having kept its memory green.

tumor of velvety feel. In the majority of these tumors there is no possibility of invagination, so compact has the circumferential contraction of the skin become. Yet occasionally we find a tumor which, when drawn from the body, becomes trumpet or funnel shaped, from the fact that at its central portion there is a hole in the skin into which a fine probe may be pushed, carrying the protrusion well under the derma, in fact, completely invaginating it. I think that this fact, which I have several times observed, clearly proves the origin of these growths to originate, as I have said, in protrusions of the skin. This is the acrochordon.

Allied to this thin form of growth we sometimes find firm fleshy growths distinctly pedunculated, in many of which invagination may be practised by means of a probe. These only differ from the thin form in structure, and not in the mode of development. The protrusion of the skin occurs, the contraction at the base begins, and a pedunculated tumor is formed, but absorption does not occur, and we find the tumor made up of nearly normal derma, with perhaps some increase in the fibrous tissue. These tumors are always larger than those of the first form, have a well-marked firm consistence, are pedunculated, less thrown into folds than the more warty tumors, and often umbilicated. They are met with, owing to vascular conditions, of various colors, either that of the normal skin, or red or even purple. They are called by the laity berries, and regarded as birth-marks, caused by some impression on the mother of the bearer, by having seen berries, be they strawberries, blackberries, or raspberries, according to the permanent or transient colors they have or may possess. Again, some of them are the seat of deep-brown pigmentation or, again, of hairy growth, and thus receive different names from the people: black moles, hairy moles or warts, etc. Pedunculated generally, they sometimes are sessile, particularly about the face, and sometimes they may be invaginated. These tumors are known in medicine as nævus mollusciformis, ecphyma mollusciforme, and nævus spilus.

These observations, therefore, bear out the statement of Simon and Behrend, who considered molluscum fibrosum as allied to nævus mollusciformis and acrochordon, since I have seen the former develop into the latter. In the light of this communication, those who may be interested may with profit read Simon ("Die Hautkrankheiten, Berlin," 1851, pages 231 *et seq.*), and study with care the figures in his fifth plate; he may also consult Behrend's Atlas and his description of the eighth class of skin diseases, which he calls hypertrophies of the cutis ("Ikonographische Darstellung der Hautkrankheiten," Leipzig, 1839, pages 62 to 64, and plates xix. and xxviii.).

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